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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	10/592,919
				Filing Date	7/31/2007
				First Named Inventor	Michael T. Migawa
				Art Unit	1635
				Examiner Name	Amy Hudson Bowman
Sheet	1	of	4	Attorney Docket Number	CORE0037USA

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

Examiner Signature	/Amy Bowman/	Date Considered	06/08/2011
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NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	16	CORNELL et al., "A Second Generation Force Field for the Simulation of Proteins, Nucleic Acids, and Organic Molecules" J. Am. Chem. Soc. (1995) 117:5179-5197.	
	17	DENISOV et al., "Solution structure of an arabinonucleic acid (ANA)/RNA duplex in a chimeric hairpin: comparison with 2'-fluoro-ANA/RNA and DNA/RNA hybrids" Nucleic Acids Res. (2001) 29:4284-4293.	
	18	DETMER et al., "Substrates for Investigation of DNA Polymerase Function: Synthesis and Properties of 4'-C-Alkylated Oligonucleotides" Eur. J. Org. Chem. (2003) 10:1837-1846.	
	19	FRASER et al., "Synthesis and Conformational Properties of 2'-Deoxy-2'-methylthio-pyrimidine and -purine Nucleosides: Potential Antisense Applications" J. Heterocycl. Chem. (1993) 30:1277-1287.	
	20	FREIER et al., "The ups and downs of nucleic acid duplex stability: structure-stability studies on chemically-modified DNA:RNA duplexes" Nucleic Acids Research (1997) 25(22):4429-4443.	
	21	GAIT et al., "Applications of Chemically Synthesized RNA" in RNA: Protein Interactions, Ed. Smith (1998) 1-36.	
	22	GALLO et al., "2'-C-Methyluridine phosphoramiditeL a new building block for the preparation of RNA analogues carrying the 2'-hydroxyl group" Tetrahedron (2001) 57:5707-5713.	
	23	HALL et al., "Properties of a U1/mRNA 5' splice site duplex containing pseudouridine as measured by thermodynamic and NMR methods Properties of a U1/mRNA 5' splice site duplex containing pseudouridine as measured by thermodynamic and NMR methods" Biochemistry (1991) 30:1795-1801.	
	24	IWAI et al., "Recognition of 2'-hydroxyl groups by Escherichia coli ribonuclease HI" FEBS Letters (1995) 368:315-320.	
	25	KATAYANGI et al., "Crystal Structure of Escherichia coli RNase HI in Complex with Mg at 2.8 Å Resolution: Proof for a Single Mg ²⁺ Binding Site" Proteins: Struct. Funct. Genet. (1993) 17:337-346.	
	26	KAWASAKI et al., "Uniformly Modified 2'-Deoxy-2'-fluoro Phosphorothioate Oligonucleotides as Nuclease-Resistant Antisense Compounds with High Affinity and Specificity for RNA Targets" J. Med. Chem. (1993) 36:831-841.	
	27	KUMAR et al., "The First Analogues of LNA (Locked Nucleic Acids): Phosphorothioate-LNA and 2'-Thio-LNA" Bioorg. Med. Chem. Lett. (1998) 8:2219-2222.	
	28	LIMA et al., "Binding Affinity and Specificity of Escherichia coli Rnase H1: Impact on the Kinetics of Catalysis of Antisense Oligonucleotide-RNA Hybrids" Biochemistry (1997) 36:390-398.	

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	29	LIMA et al., "Human RNase H1 Uses One Tyroptophan and Two Lysines to Position the Enzyme at the 3'-DNA/5'-RNA Terminus of the Heteroduplex Substrate" J. Biol. Chem. (2003) 278(50):49860-49867.	
	30	MORAN et al., "Difluorotoluene, a Nonpolar Isostere for Thymine, Codes Specifically and Efficiently for Adenine in DNA Replication" J. Am. Chem. Soc. (1997) 119:2056-2057.	
	31	NIELSEN et al., "Sequence-Selective Recognition of DNA by Strand Displacement with a Thymine-Substituted Polyamide" Scence (1991) 254:1497-1500.	
	32	PARIKH et al., "Uracil-DNA glycosylase-DNA substrate and product structures: Conformational strain promotes catalytic efficiency by coupled stereoelectronic effects" PNAS (2000) 10:5083-5088.	
	33	RENNEBERG et al., "Watson-Crick Base-Pairing Properties of Tricyclo-DNA" J. Am. Chem. Soc. (2002) 124:5993-6002.	
	34	SCARINGE, "RNA Oligonucleotide Synthesis via 5'-Silyl-2'-Orthoester Chemistry" Methods (2001) 23:206-217.	
	35	SINGH et al., "LNA (locked nucleic acids): synthesis and high-affinity nucleic acid recognition" Chem. Commun. (1998) 4:455-456.	
	36	TRAPANE et al., "DNA Triple Helices with C-Nucleosides (Deoxypseudouridine) in the Second Strand" J. Am. Chem. Soc. (1994) 116:8412-8413.	
	37	WANG et al., "Cyclohexene Nucleic Acids (CeNA): Serum Stable Oligonucleotides that Activate RNase H and Increase Duplex Stability with Complementary RNA" J. Am. Chem. Soc. (2000) 122:8595-8602.	
	38	WOUTERS et al., "5'-Substituted Pyrimidine 1,5-Anhydrohexitols: Conformational Analysis and Interaction with Viral Thymidine Kinase" Bioorg. Med. Chem. Lett. (1999) 9:1563-1566.	
	39	WU et al., "Molecular Cloning and Expression of cDNA for Human RNase H" Antisense Nucleic Acid Drug Discov. (1998) 8:53-61.	
	40	WU et al., "Properties of Cloned and Expressed Human RNase H1" J. Biol. Chem. (1999) 274(40):28270-28278.	
	41	WU et al., "Investigating the Structure of Human RNase H1 by Site-directed Mutagenesis" J. Biol. Chem. (2001) 276(26):23547-23553.	

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